

**Amendment to the Claims:**

This Listing of Claims will replace all prior versions, and listings, of claims in the application. Compared to prior versions, claims 1-4, 7, 8, 10, 12, 13, 17, 19 and 20 are amended while 5, 6, 9 and 11 appear as originally presented. Claims 14-16, 18, 21 and 22 are canceled.

**Listing of Claims:**

1. (Currently Amended) A method for discovery of network topology in networks having network routers with unnumbered interfaces connecting to next-hop routers having an assigned unknown destination network number, the method comprising:

obtaining ~~[[the]]~~ a configuration of ~~[[all]]~~ every routers in ~~[[the]]~~ a network;  
for a particular router of the every router in the network, identifying an unnumbered interface;

for the unnumbered interface of ~~[[a]]~~ the particular router, identifying all connected routers ~~on the destination networks~~ reachable through the unnumbered interface including the next-hop routers and routers connected beyond the next-hop routers and adding those said all connected routers to a connected router list for the unnumbered interface, wherein at least one of the next-hop routers and one of the routers connected beyond the next-hop routers has the assigned unknown destination network number;

for the all connected routers in the connected router list, determining which of the all connected routers is an immediate neighbor to the particular router having the unnumbered interface;

determining ~~[[the]]~~ a connected interface of the immediate neighbor which connects to the unnumbered interface of the particular router; ~~[[and]]~~

identifying an unnumbered link between the unnumbered interface and the connected interface; and

repeating the identifying an unnumbered interface and identifying all connected routers for each of the every router in the network.

2. (Currently Amended) The method as recited in claim 1, wherein the operation of determining which of the all connected routers is ~~[[an]]~~ the immediate neighbor is conducted by: further includes checking for an intermediate router in the connected router list if the ~~connected router is~~ between the particular router and the immediate neighbor another router in the connected router list.

3. (Currently Amended) The method as recited in claim 2, wherein the checking operation ~~is conducted by~~ further includes determining whether the immediate neighbor ~~connected router~~ connects to the unnumbered interface and to the routers connected beyond the next-hop routers ~~all other connected routers~~ over different interfaces.

4. (Currently Amended) The method as recited in claim 2, wherein the checking operation ~~utilizes~~ further includes utilizing values in a route table ~~for each connected router;~~ wherein the values ~~comprise the~~ having an interface index and ~~[[the]]~~ a route destination.

5. (Original) The method as recited in claim 1, further comprising:  
confirming that the immediate neighbor connects to the unnumbered interface via a network route or a default route over an unnumbered interface.

6. (Original) The method as recited in claim 1, further comprising:  
storing the unnumbered link in a connectivity list; and

periodically updating the connectivity list.

7. (Currently Amended) The method as recited in claim 6, wherein the connectivity list is periodically updated by repeating ~~the operations and~~ determining whether the unnumbered link ~~[[was]]~~ is identified in ~~[[the]]~~ a current or a previous cycle.

8. (Currently Amended) A method for automated discovery of network topology in networks having network routing devices with unnumbered interfaces connecting to next-hop routers with an assigned unknown destination network number, the method comprising:

for a routing device in a network, identifying an unnumbered interface of the routing device;

identifying connected routing devices connected to the unnumbered interface including the next-hop routers and routers connected beyond the next-hop routers, at least one of the next-hop routers and one of the routers connected beyond the next-hop routers having the assigned unknown destination network number;

determining which of the connected routing devices is an immediate neighbor to the routing device having the unnumbered interface;

identifying an unnumbered link between the unnumbered interface and ~~[[the]]~~ a corresponding interface of the immediate neighbor; and

indicating the unnumbered link in network topology data.

9. (Original) The method as recited in claim 8, wherein the operation of determining the immediate neighbor is conducted by determining which connected routing device connects to the unnumbered interface and to all other connected routing devices over different interfaces.

10. (Currently Amended) The method as recited in claim 9, wherein the determining operation utilizes values in a route table for each connected router, the values comprising ~~[[the]]~~ an interface index and ~~[[the]]~~ a route destination.

11. (Original) The method as recited in claim 8, further comprising:  
confirming that the immediate neighbor connects to the unnumbered interface via a network route or a default route.

12. (Currently Amended) A method for automated discovery of network topology in networks having network routing devices with unnumbered links, the method comprising:

identifying an unnumbered interface of a routing device in a network;

using route data of a connected router list to identify connected routing devices connected to the unnumbered interface including identifying next-hop routers and routers connected beyond the next-hop routers, wherein at least one of the next-hop routers and one of the routers connected beyond the next-hop routers has an assigned unknown destination network number;

for the next-hop routers and the routers connected beyond the next-hop routers, identifying all connected routing devices and adding the all connected routing devices to the connected router list;

for every of the connected routing devices and the all connected routing devices of the connected router list, comparing ~~[[the]]~~ interface connections ~~of the~~ connected routing device; and

using the compared interface connections comparisons to identify an unnumbered link between the unnumbered interface and a corresponding interface of one of the connected routing devices, the one of the connected routing devices being an immediate neighbor listed on the connected router list as one of the next-hop routers.

13. (Currently Amended) The method as recited in claim 12, wherein the comparing comparison utilizes route destination and corresponding interface data.

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Currently Amended) A computer network, comprising:

at least two network devices connected to one another in a next-hop configuration, one device having an unnumbered interface connected to an unnumbered interface of the other device thereby defining a link that is unnumbered, wherein the one device and the other device each has an assigned unknown destination network number corresponding to the other device and the one device, respectively;

network management information data on a connected router list indicating [[the]] interface assignments of the two network devices; and

a network management system configured to access the network management information data on the connected router list, to confirm that the network devices are immediate neighbors and connect to one another via unnumbered interfaces, to assign an identifier of the unnumbered link, and to present that identifier in network topology data, wherein the confirmation that the network device are said immediate neighbors and connect to one another further includes configuration of the network management system to examine the connected router list and compare each said interface assignment of the two network devices and determine whether the other device connects to the one device over a different

interface assignment than the other device connects to still another network device having the assigned unknown destination network number.

18. (Canceled)

19. (Currently Amended) The network as recited in claim 17, wherein the two network devices comprise routing devices ~~and wherein the network management system is configured to identify all routing devices connected to each unnumbered interface of a routing device.~~

20. (Currently Amended) The network as recited in claim 19 ~~[[17]]~~, wherein the routing devices comprise routers.

21. (Canceled)

22. (Canceled)